



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/753,944	01/03/2001	Barry L. Phillips	BASI.IP2023	3112

24347 7590 03/06/2003

Worsham, Forsythe and Woolridge, LLP  
Patent Department  
30th Fl., Energy Plaza  
1601 Bryan St.  
Dallas, TX 75201

EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
----------	--------------

1723

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/753,944

Applicant(s)

PHILLIPS, BARRY L.

Examiner

David L. Sorkin

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 49-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 49-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 February 2003 has been entered.

### ***Specification***

2. On page 6, line 28, "lover" apparently should read - - lower - -.

### ***Claim Objections***

3. In claims 60 and 61, - - the - - or - - said - - should be inserted before "first and second wings" to make clear the first and second wings are those recited in base claim 58.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 49-57 and 68 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is insufficient

Art Unit: 1723

support in the originally specification for the new limitation "a uniform thickness between the upper and lower surfaces", recited in claims 49, 52, 55 and 68. Despite careful review of the specification, the examiner cannot find any discussion of uniformity of thickness.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how many wings and nozzles are required by claim 52. It is unclear if the phrasing "further comprising: a plurality of wings" requires at total of at least two wings, or at least two wings in addition to the wing required by the parent claim 49, for a total of at least three wings. Likewise, it is unclear if at least two or at least three nozzles are required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 49-52, 54-56, 58, 59, 61 and 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 4,929,088). Regarding claim 49, Smith ('088) discloses a system comprising a duct (22), a wing (14) having a first end and second end, an upper surface, a lower surface and a uniform thickness between the upper and lower

Art Unit: 1723

surfaces extending from the first to the second ends of the wing, the wing non-movably coupled within the passageway of the duct and configured to shed a vortex at an edge of the second end of the wing, a nozzle (40) to discharge a mixture into passageway, the nozzle located adjacent the edge of the second end of the wing such that the nozzle discharges the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the wing. Claims 50 and 51 fail to further structurally limit the claimed apparatus, because the limitations of the claims solely relate to intended use of the claimed apparatus. As held in *In re Casey* 152 USPQ 235 (CCPA 1967), "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself". Regarding claim 52, the system comprises a plurality of wings (14, 18) having a first end and second end, and upper surface, a lower surface and a uniform thickness between the upper and lower surfaces extending from the first to the second end thereof, the wings non-movably coupled within the passageway of the duct and configured to shed a vortex at an edge of the second end thereof; and a plurality of nozzles (40,42) to discharge a mixture into passageway, the nozzle located adjacent the edge of the second end of one of the wings such that the nozzles discharge the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the wings. Regarding claim 54, the wing is non-moveably coupled to the inner surface of the duct at a lift generating angle of attack such that the first end of the wing is positioned substantially upstream a direction of travel of the gas stream through the passageway and such that the second end of the wing is substantially down stream of the direction of travel of the gas stream through the

Art Unit: 1723

passageway (see Fig. 6). Regarding claim 55, the system further comprises a second wing (18) having a first end and second end, and upper surface, a lower surface and a uniform thickness between the upper and lower surfaces extending from the first to the second ends of the wing, the second wing non-movably coupled within the passageway of the duct and configured to shed a vortex at edge of the second end of the second wing, and wherein the second wing is non-moveably coupled to the inner surface of the duct at a lift generating angle of attack such that the first end of the second wing is positioned substantially upstream a direction of travel of the gas stream through the passageway and such that the second end of the second wing is substantially downstream of the direction of travel of the gas stream through the passageway (see Fig. 6); and a second nozzle (42) to discharge a mixture into passageway, the second nozzle located adjacent the edge of the second end of the second wing such that the nozzle discharges the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the second wing. Regarding claim 56, the wing and the second wing are coupled to the inner surface of the duct such that the first ends of the wing and second wing are located substantially along a plane perpendicular to the direction of travel of the gas stream through the passageway of the duct (see Fig. 6). Regarding claim 58, Smith ('088) discloses a system comprising a duct (22) with an inner surface defining a passage; a first wing (14) having a first end and a second end, the first wing non-movably coupled within the passageway of the duct such that the first end of the first wing is positioned along a plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the

Art Unit: 1723

passageway; a second wing (18) having a first end and a second end, the second wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along the plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway; a first nozzle (40) to discharge a mixture into the passageway, the first nozzle located adjacent the edge of the second end of the first wing; and a second nozzle (42) to discharge a mixture into the passageway, the second nozzle located adjacent the edge of the second end of the wing. Regarding claim 59, the first and second wings are non-movably coupled to first and second opposing walls respectively within the duct along the same plane in the passageway (see Figs. 6 and 7). Regarding claim 61, first and second wings are non-movably coupled the inner surface of the duct at a lift generating angle of attack such that the first ends of the first and second wings are positioned substantially upstream of the direction of travel of the gas stream through the passageway and such that the second ends of the first and second wings are substantially down stream of the gas stream through the passageway (see Fig. 6).

Regarding claim 68, Smith ('088) discloses a system comprising a duct (22) with an inner surface defining a passage; a first wing (14) having a first end and a second end, the first wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along a plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway, and wherein the first wing having a uniform thickness between the upper and lower surfaces extending from the first end to the second end of the first wing; a



Art Unit: 1723

second wing (18) having a first end and a second end, the second wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along the plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway, and wherein the second wing having a uniform thickness between the upper and lower surfaces extending from the first end to the second end of the first wing; a first nozzle (40) to discharge a mixture into the passageway, the first nozzle located adjacent the edge of the second end of the first wing; and a second nozzle (42) to discharge a mixture into the passageway, the second nozzle located adjacent the edge of the second end of the wing.

10. Claims 49-52, 54-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Streiff et al. (US 5,456,533). Regarding claim 49, Streiff ('533) discloses a system comprising a duct (7), a wing (30) having a first end and second end, an upper surface, a lower surface and a uniform thickness between the upper and lower surfaces extending from the first to the second ends of the wing, the wing non-movably coupled within the passageway of the duct and configured to shed a vortex at an edge of the second end of the wing, a nozzle (21) to discharge a mixture into passageway, the nozzle located adjacent the edge of the second end of the wing such that the nozzle discharges the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the wing (see especially Figs. 9a and 9b). Claims 50 and 51 fail to further structurally limit the claimed apparatus, because the limitations of the claims solely relate to intended use of the claimed apparatus. As held in *In re Casey* 152



Art Unit: 1723

USPQ 235 (CCPA 1967), "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself". Regarding claim 52, the system comprises a plurality of wings (30) having a first end and second end, and upper surface, a lower surface and a uniform thickness between the upper and lower surfaces extending from the first to the second end thereof, the wings non-movably coupled within the passageway of the duct and configured to shed a vortex at an edge of the second end thereof; and a plurality of nozzles (21) to discharge a mixture into passageway, the nozzle located adjacent the edge of the second end of one of the wings such that the nozzles discharge the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the wings (see col. 2, lines 14-23).

Regarding claim 54, the wing is non-moveably coupled to the inner surface of the duct at a lift generating angle of attack such that the first end of the wing is positioned substantially upstream a direction of travel of the gas stream through the passageway and such that the second end of the wing is substantially down stream of the direction of travel of the gas stream through the passageway (see Figs. 9a and 9b). Regarding claim 55, the system further comprises a second wing (30) having a first end and second end, and upper surface, a lower surface and a uniform thickness between the upper and lower surfaces extending from the first to the second ends of the wing, the second wing non-movably coupled within the passageway of the duct and configured to shed a vortex at edge of the second end of the second wing, and wherein the second wing is non-moveably coupled to the inner surface of the duct at a lift generating angle of attack such that the first end of the second wing is positioned substantially upstream

Art Unit: 1723

a direction of travel of the gas stream through the passageway and such that the second end of the second wing is substantially down stream of the direction of travel of the gas stream through the passageway (see Fig. 9a and 9b); and a second nozzle (21) to discharge a mixture into passageway, the second nozzle located adjacent the edge of the second end of the second wing such that the nozzle discharges the mixture into the vortex at a point wherein the vortex is shed by the edge of the second end of the second wing (see col. 2, lines 14-23). Regarding claim 56, the wing and the second wing are coupled to the inner surface of the duct such that the first ends of the wing and second wing are located substantially along a plane perpendicular to the direction of travel of the gas stream through the passageway of the duct (see Fig. 10, col. 2, lines 14-23). Regarding claim 57, the upper and lower surfaces of the wing defines an upper and lower arcuate shapes of the wing extending from the first end to the second end of the wing wherein the upper arcuate shape is substantially similar to the lower arcuate shape of the wing (see col. 2, lines 14-18; col. 3, lines 25-26, Fig. 3d). Regarding claim 58, Streiff ('533) discloses a system comprising a duct (7) with an inner surface defining a passage; a first wing (30) having a first end and a second end, the first wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along a plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway; a second wing (30) having a first end and a second end, the second wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along the plane within the passageway of the duct, the plane

Art Unit: 1723

substantially perpendicular to a direction of travel of a gas stream through the passageway; a first nozzle (21) to discharge a mixture into the passageway, the first nozzle located adjacent the edge of the second end of the first wing; and a second nozzle (21) to discharge a mixture into the passageway, the second nozzle located adjacent the edge of the second end of the wing (see Figs. 9a, 9b, 10; col. 2, lines 14-23). Regarding claim 59, the first and second wings are non-movably coupled to first and second opposing walls respectively within the duct along the same plane in the passageway (see lines 14-23). Regarding claim 60, the wings are cambered wings (see col. 2, lines 14-18; col. 3, lines 25-26, Fig. 3d). Regarding claim 61, first and second wings are non-movably coupled to the inner surface of the duct at a lift generating angle of attack such that the first ends of the first and second wings are positioned substantially upstream of the direction of travel of the gas stream through the passageway and such that the second ends of the first and second wings are substantially downstream of the gas stream through the passageway (see Fig. 6). Regarding claims 62-64, third and fourth wings and nozzles according to claims 62-64 are disclosed (see Figs. 9a, 9b, 10; col. 2, lines 14-23). Regarding claim 65, the wings are cambered wings (see col. 2, lines 14-18; col. 3, lines 25-26, Fig. 3d). Claims 66 and 67 fail to further structurally limit the claimed apparatus, because the limitations of the claims solely relate to intended use of the claimed apparatus. As held in *In re Casey supra.*, "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself". Regarding claim 68, Streiff ('533) discloses a system comprising a duct (7) with an inner surface defining a passage; a

Art Unit: 1723

first wing (30) having a first end and a second end, the first wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along a plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway, and wherein the first wing having a uniform thickness between the upper and lower surfaces extending from the first end to the second end of the first wing; a second wing (30) having a first end and a second end, the second wing non-movably coupled with in the passageway of the duct such that the first end of the first wing is positioned along the plane within the passageway of the duct, the plane substantially perpendicular to a direction of travel of a gas stream through the passageway, and wherein the second wing having a uniform thickness between the upper and lower surfaces extending from the first end to the second end of the first wing; a first nozzle (21) to discharge a mixture into the passageway, the first nozzle located adjacent the edge of the second end of the first wing; and a second nozzle (21) to discharge a mixture into the passageway, the second nozzle located adjacent the edge of the second end of the wing (see Figs. 9a, 9b, 10; col. 2, lines 14-23).

11. Claims 58 are rejected under 35 U.S.C. 102(b) as being anticipated by "Selective Catalytic Reduction" (SCR), filed in the IDS which is paper No. 4. Regarding claim 58, as seen on pages 1-3, SCR discloses a system comprising a duct; first and second wings having first and second ends, the wings non-movably coupled within the passageway of the duct with the first ends positioned along a plane within the duct substantially perpendicular to the direction of travel of the gas stream through the

Art Unit: 1723

passageway; and first and second nozzles to discharge a mixture into the passageway of the duct, the nozzles respectively located adjacent the edges of the second ends of the wings.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 62-64, 66 and 67 rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US 4,929,088), as applied to claim 58 above. With Smith ('088) further discloses third and fourth wings (16,20) according to claims 62-64, it is not explicitly stated that these wing have corresponding third and fourth nozzles. However, it considered that it would have been obvious to one of ordinary skill in the art have provided additional nozzles to inject additional fluids, or to provide fluid at additional points. See *In re Harza*, 124 USPQ 378 (CCPA 1960) and *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8, 11 (7<sup>th</sup> Cir. 1977) regarding the obviousness of duplicating parts. The wings are mounted in on opposite walls in accordance with claim 64 (see Fig. 6). Claims 66 and 67 fail to further structurally limit the claimed apparatus, because the limitations of the claims solely relate to intended use of the claimed apparatus. As held in *In re Casey supra.*, "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself".

Art Unit: 1723

14. Claims 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Selective Catalytic Reduction" (SCR), as applied to claim 58 above. Third and forth wing pairs according to claims 62 and 63 are not explicitly disclosed. However, it is considered that it would have been obvious to one of ordinary skill in the art to have provided additional wings and nozzles to provide fluid at additional points. See *In re Harza*, 124 USPQ 378 (CCPA 1960) and *St. Regis Paper Co. v. Bemis Co., Inc.* 193 USPQ 8, 11 (7<sup>th</sup> Cir. 1977) regarding the obviousness of duplicating parts.

15. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streiff ('533), as applied to claim 49 above, in view of Althaus et al. (US 5,518,311). Streiff ('533) does not disclose a second nozzle at the second end of the wing. Althaus ('311) teaches placement of two nozzles at two edges of a wing (see Figs. 8 and 14). It is considered that it would have been obvious to one of ordinary skill in the art to have provided the wing of Streiff ('533) with a second nozzle on a second end as taught by Althaus ('311), because Althaus ('311) explains that such an arrangement improves mixing by extending vortices (see col. 6, lines 15-23). See also, *In re Harza*, supra. and *St. Regis Paper Co. v. Bemis Co., Inc.* supra. regarding the obviousness of duplicating parts.

### ***Response to Arguments***

16. Applicant's arguments are moot in view of the new grounds of rejection.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

March 3, 2003



CHARLES E. COOLEY  
PRIMARY EXAMINER